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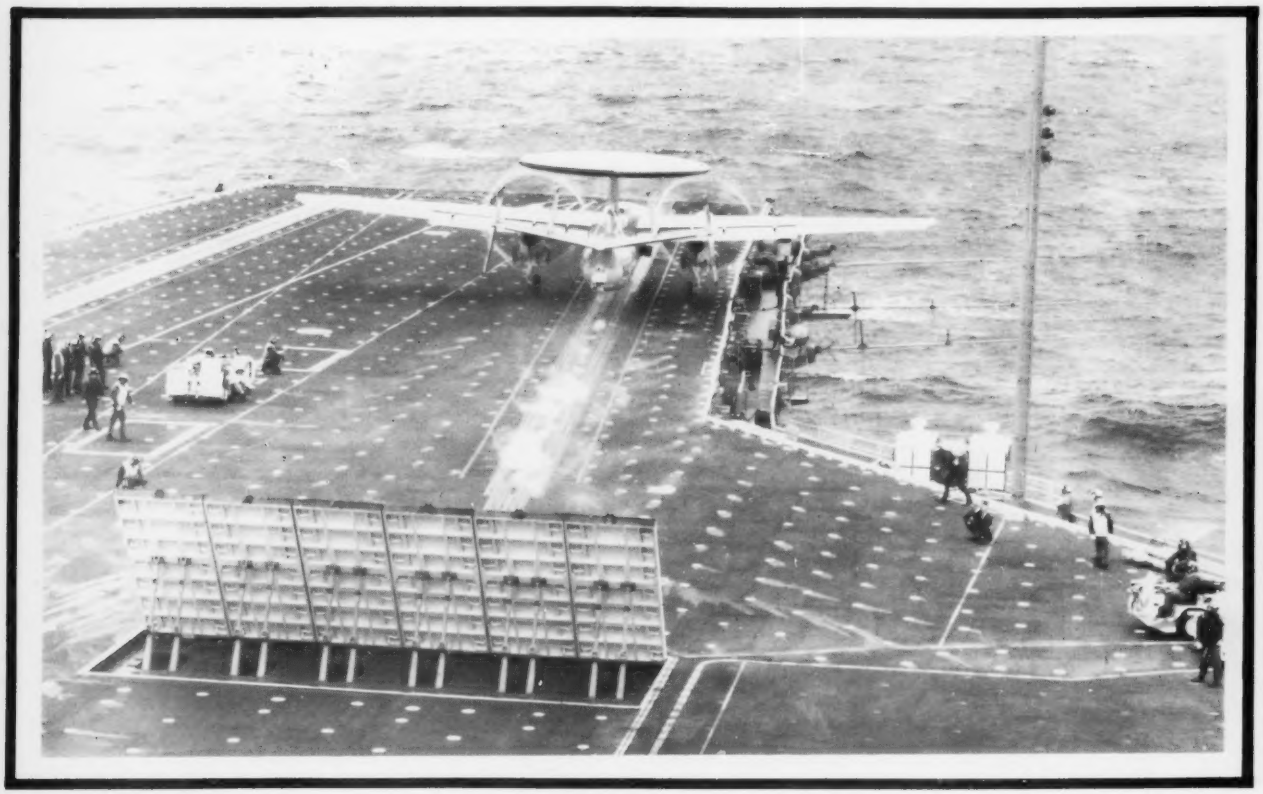

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*M*oments from Disaster – Part II

Body FOD

Birdstrike Weekend

Only the Spare

Guest Editorial

Mr. Murphy Was an Aviator

By Cdr. J.F. Schork

The probability of a generator failing is inversely proportional to how dark it is.

Approach will always issue a "signal delta" after you have dumped to "max trap."

On a bingo profile, you will **always have a headwind.**

Fuel-transfer failures will normally happen at the farthest point from the ship.

The chances of a tanker being sour is directly linked to how bad the weather is.

A foul deck wave-off always occurs at the most inopportune time.

The chances of a "spare" launching is inversely proportional to how much the crew is prepared to go.

If you don't take a camera, chart, approach plate or kneeboard card, you will need them on this flight.

Fire warning lights are significantly brighter at night.

The list goes on and on. Depending on your aircraft, your list of Murphys may have some different entries. Our business is painfully predictable: Whatever can happen . . . will!

Cdr. Schork is the CO of VA-95.

approach

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On the Cover: An E-2C Hawkeye launches from the deck of USS *America* (CV-66). Photo: Chris Ziebold, McDonnell Douglas Corp.

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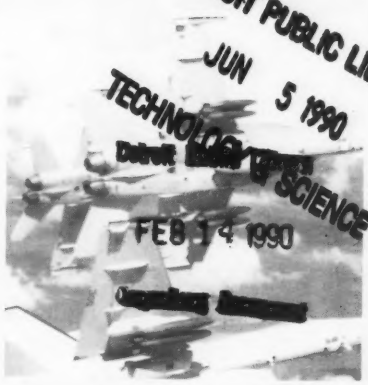

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"The Chaplain is

FIRST she learned from someone she never met that her husband had ejected from TA-4J. Then she called the squadron XO (skipper of the det) and found out that, although two parachutes were sighted floating to the ground, only one pilot was visible in an open field and in contact with the rescue aircraft. Her husband had landed in tall pine trees, invisible from the air and still silent on the radio. She knew that her husband had to be alive – maybe hurt, but still alive.

Coming Over to See You"

By Lt.T.J.Roorda

Twenty minutes later the phone rang. A distant female voice on the other end said, "The chaplain is coming over to see you."

Those words uncaged the fear that shadows every Naval Aviator's wife. It shattered her belief that he was alive. It felt as if someone had slugged her in the stomach. She felt like her own feelings had lied to her. People who were with her said her face and body "reflected sheer terror." She hung up the phone without responding to the caller. She said to the others, "I don't want to see him, I don't want to see him," denying that the chaplain would have a reason for seeing her.

The chaplain did have reason to see her. He wanted to offer comfort during a time of uncertainty. The chaplain did not know anything more than she or the XO or the crew of the rescue aircraft knew. The time of uncertainty is very difficult for the family involved. No one should call a wife and say, "The chaplain is coming over to see you," without further explanation.

How a family is informed is as important as the information. Part of the squadron mishap plan should emphasize these considerations.

The squadron should be ready; mine wasn't. I had gone up in the back seat of the

lead aircraft in a three-plane ACM sortie. We ejected. While they looked for me, my wife suffered through the phone call and time of uncertainty. In reviewing what happened, I recalled a series of events leading up to the mishap.

It was the students' last flight before they received their wings. After my ejection, one student assumed the job of on-scene commander. His wife was waiting in the ready room for a final-flight celebration. Because the hangar party was delayed, the squadron sent the student's wife to tell my wife, Kate, about the situation. The SDO had found out that Kate was eating lunch with her former work mates. Kate had never met the student's wife until she caught up with her in the parking lot. The encounter went as follows:

She: "Are you Kate Roorda?"

Kate: "Yes."

She: "I've come to sit with you."

Kate and her luncheon friends looked at each other, perplexed.

Then came the punch line:

She: "Your husband has ejected."

It was admirable that the student's wife took on such an arduous task. Later, Kate said it probably would have been better to learn about the mishap from someone in the squadron with knowledge and authority. Her only true comfort would come from reliable information.

During such trying times, a process of elimination takes place among squadron wives. They try to learn who was involved and what happened. When calls were made to track down my wife, the urgency of the caller's voice revealed something had happened. There is no better information network like that of the wives'club. Soon many of them figured out that a mishap had occurred, but they had no concrete information. In such an atmosphere, rumors abound, and this is bad when lives are in question.

Sometimes husbands call home, in a I-can't-tell-you-why-I'm-calling tone of voice and say, "Honey, I'm OK, don't worry about me." Again, the process of elimination occurs, and tidbits of information are pieced together like a motley quilt that comforts nobody.

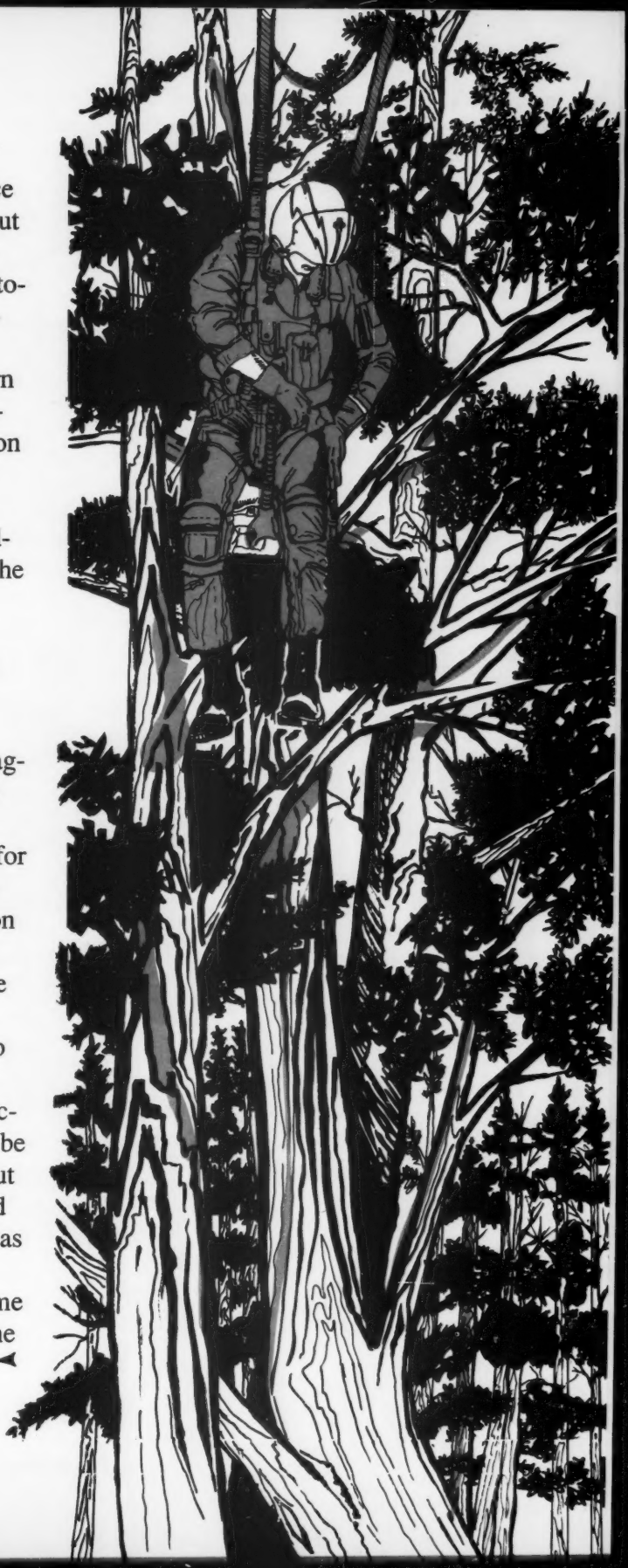
More than that, the news media may learn about a mishap from the pieces of information and rumors passing around. A squadron pilot's mother living in California learned from a cable TV news program that two pilots had ejected from a TA-4J near Meridian, Miss. She called within an hour from the incident asking questions.

A reporter wouldn't hesitate calling a squadron wife if he thought that she could provide information. The media thrive on names. In a rush to be the first to break a story, the media could make a mistake. Imagine being a wife and hearing over the radio that your husband was in a plane crash.

Looking back, I have nothing but praise for the SDO, the on-scene commander and his wife. They handled a very difficult situation the best they could. Also, I appreciate the chaplain's efforts, although I wish his office would have said more to my wife on the phone than "The chaplain is coming over to to see you."

In all of the confusion of a mishap, a process of handling information should already be in place to comfort those concerned and shut out those with no need to know. That would have made Kate's life a bit easier while I was suspended in my parachute 70 feet off the forest floor waiting for the SAR helo to come and cut me out of all those tall Alabama pine trees. But that's another story.

Lt. Roorda is assigned to VFA-125.



Good Habits...

Chris Ziebold

Don't Kill!

By LCdr. Timothy A. White

AT each brief, my first flight instructor made me bounce a tennis ball as I recited emergency procedures. He didn't want to see if I could walk and chew gum simultaneously (although he may have had his doubts), but to reinforce why such procedures must be second-nature, even when I was tasked with other activities.

In the years that have followed, aircraft have become more complex and their systems more demanding. Out of necessity, aircrews that fly them have become creatures of habit. Is this the best way to operate? Repetition of checklists naturally breeds habits. The habit of doing checklists correctly is, of course, a good one. But what about the habit formed by repeating unwritten tasks? Too often, this form of repetition results from doing this quickly; that's where we should become concerned. It's too easy to fall into a bad habit.

Do you cut your preflight short because there is never anything wrong anyway? Do you always exit the flight deck through the same hatch because it is closer to the ready room, even though it's on the far side of the flight deck? Are the ejection handle and the jettison button the last things in your scan before a cat shot? Maybe it's time to take a step back and reevaluate your habit patterns.

A magician amazes people with his showmanship because he shows us what we expect to see. Too often, we aircrews see three-down-and-locked when they are not. Or we see 1,200 feet on the altimeter when it really reads 200 feet.

Recently, a young aviator was conducting CQ simultaneously with cyclic launches. His aircraft had a full bag of gas. As a nugget, his experience on the flight deck was limited, and he was apprehensive. He fell behind the aircraft. Taxiing to the cat, he hurriedly rogered his aircraft's weight which was exactly *10,000 pounds below* his actual weight. Fortunately, he was able to fly away after launch, 20 feet above the water.

Paddles always says, "Never recenter a high ball in close." But hard landings happen too often. Even though "the right tool for the job" is a common axiom, sick bay is filled with shipmates who fell off a chair or a stack of boxes instead of finding a proper ladder.

The Air Boss goes through his litany advising caution around huffer exhaust and ordnance. Yet, a Walleye's protective cover melted in the hot exhaust of a Hornet. Since huffers are rarely used with F/A-18s, these words of caution were dismissed. We heard what we wanted to hear.

Our reliance on routine reinforces our habit patterns. How do we keep this situation from developing? First, we must continue reinforcing good habits. They will stop the chain of events that may lead to a mishap. Checklists, emergency procedures and SOP are thought out and designed for these reasons. On your next flight, pull out the PCL and comply with the preflight and checklists. You might discover a short cut that you have inadvertently made into a habit.

Naval Aviators thrive on routine. Take time to step back to ensure your routine is a safe one. ◄

LCdr. White was the LSO for CVW-1. He recently reported to VFA-15.

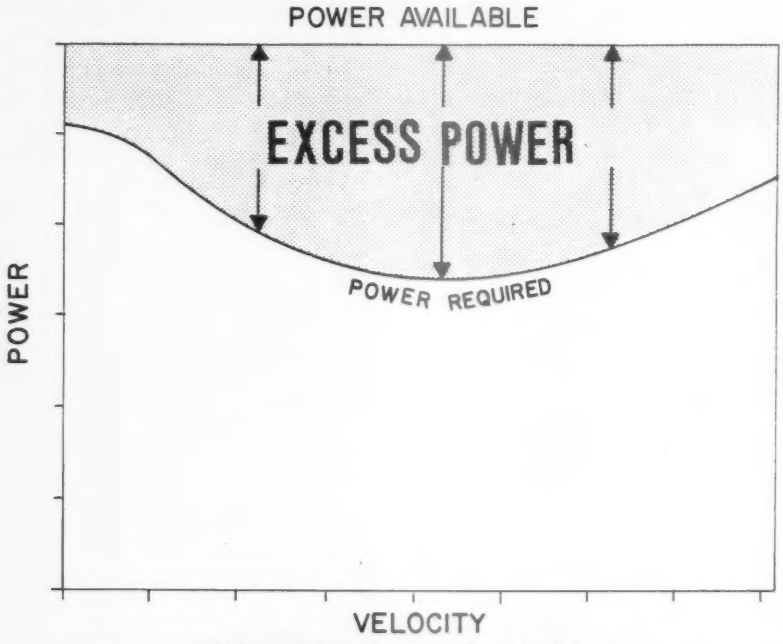
MOMENTS FROM

By Capt. R.E. Joslin, USMC

The first part of this article appeared in the January '89 issue of Approach. I discussed the consequences of rolling into an excessive angle-of-bank when flying close to the ground. But what defines an "excessive" angle-of-bank for a particular aircraft under a specified flight condition? We could arbitrarily restrict our angle-of-bank to a particular value, but this would severely limit our operating envelope.

The solution is already available in the *Assault Support Helicopter Tactical Manual, Vol. 2 (ASH, Vol. 2)* in the form of Energy-to-Maneuver diagrams. The *ASH* is that classified manual with the red cover that is locked up in your squadron's vault. Most helicopter pilots don't know the book exists, and those who do, normally only consult it just before check rides.

The fixed-wing community has been using these diagrams for years, mainly as tools to compare their capabilities to those of their adversaries. The diagrams show an aircraft's ability to maneuver based on its excess power. Excess power is the difference between the power available and the power required for straight-and-level flight under a given set of conditions. (Figure 1.)



CONSTANT GROSS WEIGHT AND ALTITUDE

FIGURE 1- EXCESS POWER TO CLIMB OR TURN

This excess power can be used to climb, roll into an angle-of-bank, or a combination of the two, and is usually shown on the sample energy-to-maneuver diagram (Figure 2). In some cases, maneuvering may result in a deficiency in power instead of an excess, causing a descent instead of a climb. We need to understand this critical condition before we fly.

Let's suppose that our mission is to be flown at 100 knots. What is our maneuver envelope? If I enter the bottom of the diagram at 100 knots and move upward, I see that if I roll into an angle-of-bank greater than 50 degrees, I will not have enough power and will go down. Write down this information on your kneeboard before you fly.

We can also extract our turn rate and turn radius from these diagrams. However, I have omitted this part to simplify the discussion.

This information is also valuable for defensive maneuvering along with mishap reconstruction when the aircraft configuration and profile are known. The dia-

DISASTER - PART II

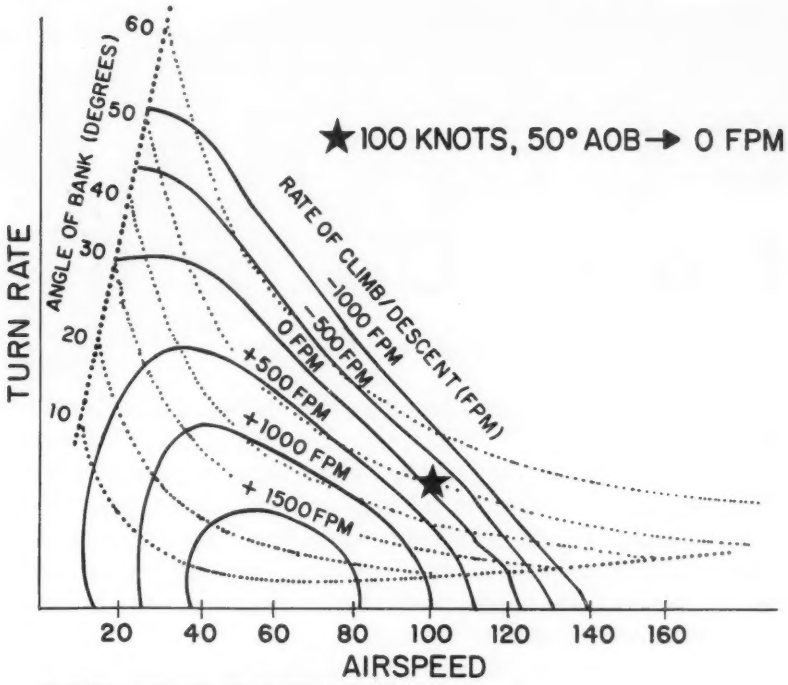
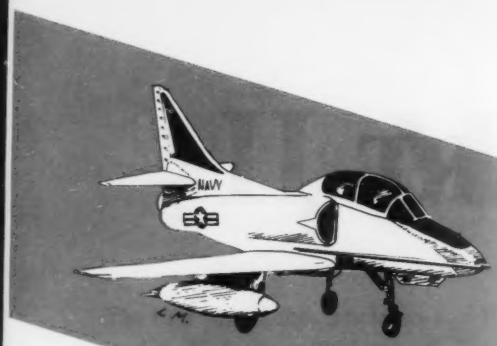


FIGURE 2: ENERGY TO MANEUVER DIAGRAM
(SPECIFIED GROSS WEIGHT, ALTITUDE, CONFIGURATION)

grams are based on using intermediate-rated power while maintaining a constant airspeed throughout the maneuver. They are valid for only one specified gross weight, altitude and configuration. Therefore, a family of curves is necessary to accurately cover all possible operating conditions. Currently, our angle-of-bank is limited by the most stringent of those defined by the aircraft operators manual (NATOPS), OPNAVINST 3710.7, or local directives. However, combat readiness can only be maintained by training in the flight regime we may encounter in combat. This can safely be achieved by proper preflight planning.

Capt. Joslin is a frequent contributor to Approach. He is a helicopter pilot currently serving a tour as the helicopter aerodynamics instructor at the Aviation Safety School at the Naval Postgraduate School.

Excess power is the difference between the power available and the power required.



CLEARED for Chaos

by Ens. Jay C. Ballard

"Charlie 454, change to departure. Wind, 140 at 15. Cleared for takeoff runway 13 left."

I was in the back on an early FAM hop. Since the student was new, I was paying close attention to his ground procedures. After we had been cleared for takeoff, I looked down to jot a few notes on my knee-board when the A-4 came to an abrupt stop. I was just getting ready to tell the student not to use the brakes for taxiing when I saw something moving out of the corner of my eye.

A light civilian aircraft was on short final for our runway. At this point, my student made a call to the tower to tell them about it. Tower had not seen the aircraft and they told us to hold short.

The light plane tried to land in the overrun then realized his mistake and added power. The plane bounced down the runway, somehow missing the arresting gear. It was an eye-opener to watch the Cessna 152 land on the runway you were cleared to take off on.

After the Cessna taxied off the runway we were cleared for takeoff once again. The flight went fine and after we landed, we called the tower to find out what had happened with the Cessna.

The civilian pilot was new and had gotten lost on a cross-country. His fuel was low, and he spotted our airfield. He decided to stay low, avoid traffic, and land. He did not contact anyone on the radio and since he was skimming the trees, Approach couldn't paint him on radar.

We all re-learned an important lesson that day. Takeoff clearance isn't an automatic assurance that the runway is clear of conflicting traffic. Always check the approach end of the runway before you cross or taxi onto it, and include this procedure in your preflight brief. ◄

Ens. Ballard is a SERGRAD instructor with VT-25. He is the squadron's Assistant NATOPS/Safety Officer.

Body F O D

By Lt. Carl Graham

When was the last time someone told you not to walk in front of a turning A-7? Probably about the same time they told you not to play with guns. It's not a difficult concept to grasp.

It was dark, real dark. The end of the world was just two steps in any direction. I was walking to my A-6 thinking, "What am I doing this for? I could have been an average to slightly above-average banker back home.

Aircraft were turning, and jets were taxiing.

"Guess I'm a little behind," I told myself. "Better hustle." Bells and whistles did not go off in my head like they probably just did in yours.

"Damn yellow shirts. They're going to point that Turkey's tail feathers right at me. Time to grab something heavy and close. That A-7 ought to work. Anyone in it? Nope. And no safeties out front. Must be OK."

I scooted over and attached myself to the Corsair's boarding ladder. Meanwhile the F-14 did its best to blow me and a couple of brown shirts over the side.

"Yum, yum, JP-5 tastes great. At least my navbag didn't get spread from here to the fantail." It was time to go. One more look. No one in the A-7's cockpit. I'll just jump out and saunter over to my jet.

Just as I was about to cross the A-7's intake, an 18-year-old brown shirt unceremoniously picked me up and tossed me back a couple of feet. He saved my life. I thanked him and sheepishly went on my way.

Why did I walk in front of that jet? I wasn't taught to do that. There were ample clues that there may be a fan spinning in there. Why was the ladder down? Why were all those maintenance troops around it? Instead, I picked my cues to support my own lack of attention. ◄

Lt. Graham is a BN with VA-165. He is the squadron legal officer.

In the Dirt at the

PH1 Gerald Lowe

WHAT a day! It started out nice enough, with only a few clouds, a light breeze, and a balmy 70 degrees. We would fly a six-hour intel flight over the Gulf of Mexico to take pictures. But 60 seconds after the takeoff roll began, I found myself shocked and bewildered, in the dirt 300 feet beyond the departure end of the runway. What went wrong?

Like so many others, this incident involved a chain of events that seemed insignificant by themselves, but which formed a sequence that could have led to a serious mishap. As a rule, you want to select the longest runway or select the runway with a headwind.

A last-minute change to the manifest increased our gross weight by 2,000 pounds. It was the end of the month, so there were a lot of people looking for flight time – 2,000-pounds worth of people. A small step closer to the edge of the envelope.

It was also the end of the quarter, and we had hours to burn. During preflight, the Ops Boss told me to add an hour to my flight. One hour equals 4,000 pounds of JP-5. Extra people and extra gas made my 110,000-pound P-3C become a 116,000-pound P-3C. One more step closer to the edge.

Ground control told me that the long runway was closed. They didn't tell me it was closed so that a civilian contractor could clean the skid marks off the centerline lights. Nor did they tell me that I could have asked for that runway anyway. Ground cleared me to the short 6,000-foot runway where there is a row of 70-foot pine trees 800 feet from the departure end.

I also had a two-knot tailwind. The flight engineer (FE) went to the NATOPS charts and told me that using normal-rated power, I had a refusal speed of 119 knots, a rotation speed of 119 knots, and a distance to liftoff of 3,630 feet. NATOPS says, "If the chart refusal speed is equal to, or greater than, the rotation speed, then rotation speed will be used for both." Consequently, when I saw that my refusal and rotation speeds were the same, I assumed that chart refusal speed was higher and that the FE had used rotation speed for both. Unfortunately, my refusal speed was really 119 knots. I was sitting on the envelope's edge and didn't know it.

As I approached the hold-short line, the tower cleared me for takeoff and updated the wind to 5 knots. The pilot at the controls asked the FE if the numbers were still good. The FE gave him a thumbs-up. I didn't think that a mere 3-knot change in wind speed was significant, so I accepted the takeoff clearance. In reality, the extra three knots lowered my refusal speed to 114 knots. I was now outside the envelope.

The aircraft's performance on the takeoff roll and during the subsequent abort did not indicate a 5-knot tailwind. I think the wind was actually closer to 10 knots. Metro's paper trace showed 5 knots, so that is what the tower gave me, but

inaccurate equipment and its location may prevent precise measurement of runway winds. Compare the tower's wind call with the wind sock. After a couple of passes, you'll agree that the tower may not know the actual wind. A 10-knot actual wind lowered my refusal speed to 107 knots.

The brake pressure on a P-3C should be 1,650 psi (plus or minus 50 psi). Post-mishap inspection revealed my hydraulic pressure at the brake pucks to be 1,450 psi. The aircraft manufacturer insists that such a minor difference did not reduce the effectiveness of my braking. However, the next time I abort, I will definitely want my brake pressure to be within limits.

At this point, I was all set up for disaster. The refusal speed was somewhere below 107 knots, but I thought it was over 119 knots. Working the problem backwards, I would have cleared the trees on four engines but by an uncomfortable margin. If I had lost an engine on rotation, I would have hit the trees. The last chance I had to break the mishap chain was to cross-check my actual performance with my predicted performance. When I reached my predicted distance from liftoff, I was only indicating 110 knots. I should have been indicating 125 knots. Something was wrong, so I aborted and came to a stop 300 feet off the end of the runway. Fortunately, there were no injuries and no damage to the aircraft.

Calculating takeoff performance with NATOPS charts is not an exact science. Some of the variables are nothing more than guesstimates, i.e., wind and braking effectiveness. Therefore, the answers are no better. In an effort to stay out of the dirt, I now calculate my own takeoff performance and compare my answers to the FE's answers. All speeds must agree within 2 knots and all distances within 250 feet.

If not, we rework the problem to resolve the discrepancies. This procedure reduces the chance of a math or chart error and, more importantly, it gives me a feel for the takeoff performance numbers.

If I had done this, I would have realized how close to the edge of the envelope I was. Even though the pilot is ultimately responsible for the safety of the flight, many people have input to the situation. The pilot must rely on maintenance, the tower and weather personnel to give him the critical elements necessary to conduct the flight. While you can't be an expert in all areas, you can be skeptical. Ask questions and verify the answers.

Glossary

Rotation speed: the indicated airspeed at which the pilot begins transitioning to his climbout attitude.

Refusal speed: the indicated airspeed above which the aircraft cannot be safely stopped on the remaining runway.

Lt. Liske is on his third deployment as a P-3 pilot with VP-24. He has been the squadron Navigation, Public Affairs and Schedules Officer.

Edge of the Envelope

By Lt. Hans P. Liske

PH1 Gerald Lowe

How To Write For Approach Magazine

By Capt. Ed Pernotto, USAF

I WAS an Air Force ROTC Military History major at Ohio State. I used to read many military magazines, a few on aviation safety. Most Air Force aviation safety articles read like this: "My TACAN was inop, so I declared an emergency." Or, "I could barely stop on that 12,000-foot runway." Then, there's that most feared nightmare, "We aborted because my Nav's box lunch had expired." Then I started reading Approach, and I quickly discovered why I used to lose chicks to you Naval Aviation types. It's the stories you tell.

A typical Approach story reads like this: "It was a night, cold-cat shot off Gonzo Station. My RIO ejected onto the LSO platform. I bounced off an E-2, and was dragged across the deck by my chute. I momentarily snagged a cable for an OK-3. Then I did a triple half-gainer with a twist into the murky water, swam for three hours, killed a shark with my survival knife, and lassoed the plane guard destroyer with my parachute chord."

Many of you old salts are flying so much that you probably don't have time to write. I'll help with my Air Force Approach Writing Gouge.

It was
1. a dark and stormy night.
2. a severe clear day.
3. a 0-dark hundred showtime.
4. our first day off Bagel Station.
5. our 68th day off Bagel Station.

I was
1. a nugget TACCO.
2. an aviation mech.
3. an old-head BN.
4. a RAG instructor pilot.
5. a Ranger centurion.

The mission was a
1. carqual.
2. det hop.
3. cross-country.
4. fly-by for the ambassador's daughter.
5. blue-water hop.

Me and my
1. second-cruise RIO
2. Skipper
3. RAF exchange pilot
4. box of lobsters
5. next-of-kin

Were
1. on the No. 2 cat.
2. on a four-mile final.
3. out of TACAN range and in the goo.
4. sucking fumes.
5. watching "Animal House."

The first thing that went wrong was
1. I showed up.
2. I had no sleep.
3. the jet broke.
4. a cold-cat shot.
5. a fire light lit.

First, we
1. executed boldface procedures.
2. looked at each other.
3. said, "Oh _____!"
4. selected afterburner.
5. called the tower.

Then, we
1. cleaned up the checklist.
2. tapped a tanker.
3. took the cable.
4. autorotated.
5. climbed into our raft.

If it wasn't for my
1. NATOPS training
2. wingman
3. RIO
4. LSO
5. St. Jude medal

"My latest Approach submission is a definitive piece on attention to detail . . ."

I wouldn't be here to write this story.

Signed: Big Jake, Lefty, Bubba, Slasher, Jugs, Mongo, Bull, Piano Man.

I have flown the: SNJ, F4F, R4D, Westland Lysander, F7U-3 Cutlass, S-2, H-3, A-6, F-8, Harrier, F-20, C-130, and T-45.

I am currently: CAG, NATOPS Officer, XO, RAG instructor, LSO, Gray Eagle, Air Boss, Truckmaster's driving instructor, unemployed.

Capt. Pernotto is a radar navigator in F-111s, stationed at Plattsburgh AFB, New York.

The J-52s can take a licking and keep on ticking.

Birdstrike Weekend!

By Lt. Mike Loriz

My first major birdstrike happened during a "good deal" cross-country. My student and I made a late afternoon takeoff and headed for NAS Midwest to refuel en route to our final destination at NAS East. Unfortunately, a problem with the landing gear forced us to RON at our refueling stop.

The fine Marine Corps Reserve unit at NAS Midwest said they could fix our jet on the following day, Saturday. We celebrated this good news at the O-Club. However, the Saturday repairs stretched on late enough to keep us one more night, with projected takeoff on Sunday morning.

Our takeoff was complicated by other aircraft malfunctions which caused us to refile for our home base at NAS Chase. After our third partial-panel, no-gyro, simulated low-oil GCA, I took the aircraft for the quick trip home. As we approached the initial on a dogleg at four miles, approach called co-altitude GCA traffic at our one o'clock.

I looked forward then to ensure the GCA traffic wasn't drifting into our flight path. As we rolled out on extended centerline at 2 1/2 miles, I sensed, more than saw, a large bird hit the nose of our TA-4J and pass along the right side into the right intake. The J-52 started surging and coughing, and the shattered nose was making a hellish racket.

I pulled power to idle, popped the speedbrakes, lowered the gear and flaps, dropped the nose to try to intercept a modified precautionary approach, and told my student, "Prepare to eject!" I saw in my rear-view mirror that he hadn't wasted any time grabbing the face curtain.

The unloaded T-bird came down well and the oversped gear locked. The knots decreased slowly, though, and we passed the shortfield gear too fast for a safe arrestment. The spoilers and brakes, followed by engine shutdown at 80 knots, brought us to a stop about 6,000 feet down the runway.

Postflight inspection revealed that the upper half of a 12-pound turkey buzzard had gone through the Skyhawk's nose, passed through our two parachute bags full of weekend gear, and lodged halfway into an avionics box. The other half of the bird passed down the jet's right side, into the right duct.

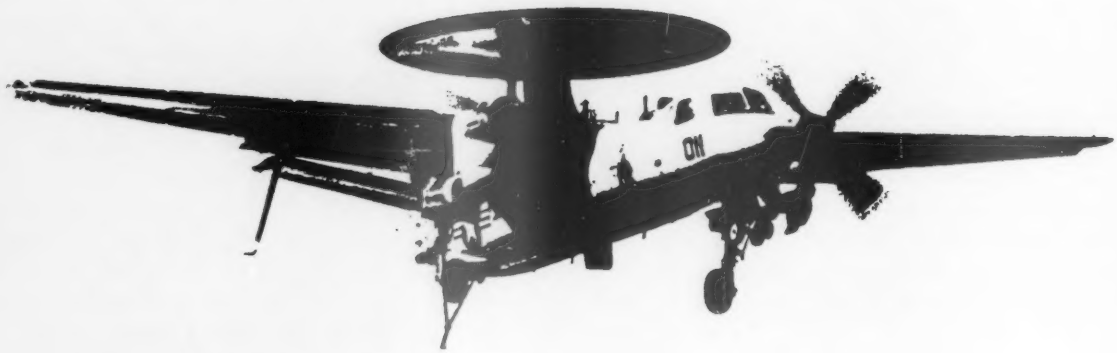
The next time I am in a multi-seat aircraft and I am questioning its ability to remain airborne, I'm going to save the word "eject" for when I really mean it. My preparatory call will not include the word, lest I find myself getting a rocket ride before I want it.

J-52s can take a licking and keep on ticking. To my great surprise, the engine was 4.0 after a clean-out.

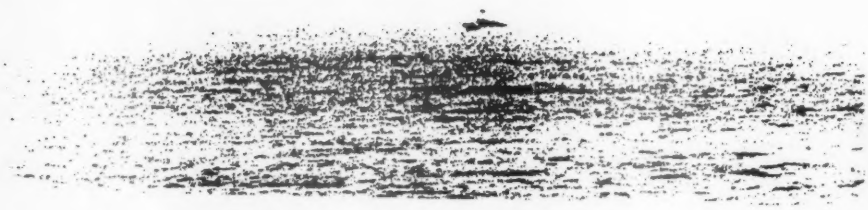
I think we crossed the threshold on a 4.5-degree glideslope with 220 knots, yet we stopped with 2,000 feet to go. Apparently, shutting down the engine in the TA-4J at 80 knots greatly reduces the landing rollout.

Lt. Loriz is an F/A-18 pilot with VFA-25. This story occurred during his SERGRAD tour with VT-24.

non-standard ops



"Takeoff checks, XO."
"OK, Nugget. Cat grip?"
"Up."
"Trim?"
"Set."
"Parking brake?"
"Set."



By Lt. Paul Driver

Set? For a normal takeoff checklist on the beach, we would release the parking brake at this point and begin the takeoff roll. That's what I was used to. Well, I wasn't on the beach; I was on the ship for my first at-sea period (REFTRA) in my new fleet squadron.

In multipiloted aircraft, we do checklists by the challenge-and-reply method. However, I hadn't figured out that at the boat, the parking-brake sequence during the takeoff checklist varies with the situation.

For instance, if you're on the catapult while the shuttle is forward, there's no problem with setting the parking brake. But when the shuttle

comes back, the brake needs to come off. This prevents the tires from blowing during a cat shot.

We were on the cat for a while. The shuttle finally came aft, and I left the brake on. We reviewed the checklist, and when we got to the parking brake, the XO reminded me that the shuttle was aft. I secured the brake. No problem – checklists are made to catch things like that. They launched us.

We completed the climb checklist and the flight was going well. We checked into marshal, completed the approach checklist, and even pushed on time.

My approach was fine until we started getting vectors for spacing. As I said before, we were on REFTRA and there were a few other nuggets out there – boltering. We were keeping track of our fuel, and we knew we didn't have too much time left before we would have to bingo.

Just as I intercepted the glideslope at three miles, we got the call to bingo. Another non-standard operation. The flight back to the beach was uneventful, and we landed with several hundred pounds of fuel to spare. We taxied to the line, turning off switches as we went, and shut down. I turned off more switches and unstrapped. As I started to get out of my seat, the aircraft jerked suddenly, like something had hit us.

I looked over to the XO who had his hand on the parking brake. No wonder that C-130 looked strange moving forward without lights on or engines turning. Luckily, there was nothing behind us. The XO had prevented a potentially dangerous situation.

Crew coordination is important. It's good to have a competent copilot. Also, when operating back and forth from the ship to the beach, some procedures are different, and it pays to think about the variations. Checklists will keep you out of trouble. Do them all. ◄

Lt. Driver is an E-2C pilot with VAW-123.

NAVAIR 01-E2AAA-1D
E-2C NATOPS CHECKLIST

NORMAL PROCEDURES

THIS CHECKLIST SUPERSEDES NAVAIR 01-E2AAA-1D DATED 1 AUGUST 1974
AIRCRAFT INCORPORATING AFC 184, AND AFC 220

PRE-START

GRD LOCKS	REMOVED & STOWED
PARKING BRAKE	SET
OVHD CKT BKRS	IN
VAPOR CYCLE	PRIM/COOL
CAINS	NORM
LANDING GEAR HANDLE	DOWN
CONDITION LEVERS	GRD STOP
BIDE CKT BKRS	IN
BK SEL VALVE	NORM
TEMP CONT PANEL	SET
ICS	SET
O_2 REG/BAILOUT BOTTLE	100% CHECK
TANK INTER SW	CLOSED
FUEL DUMP SW	OFF
⚠ FUEL GOV SW	OFF/CTR
⚠ AUTO FEATHER SW	ARM
⚠ PROP SYNC MASTER SW	STBY
⚠ PROP L&R GOV SW	NORM
FUEL BOOST PUMPS	CHECK
ENGINE PANEL	SET
RADIOS	AS REQ
NAVAIDS	ON
LIGHTS	ALL SW SET
ANTI-ICE PANEL	OFF
GEN/BUS TIES	OFF
BLEED AIR OVHT PANEL	CHECKED/ON
EMERG PANEL	CHECK
WARN LTS	CHECK
FUEL O_2 QUANT TEST SW	PRESS/HOLD
HYD ISOL VALVE	TO & LDG
WING/FOLD/FLAPS	CORRES
HOOK	UP
HOOK BY-PASS SW	AS DESIRED
STALL WARNING BUTTON	CHECK
MAG/VAR	AUTO
ACLS/TACAN SW	CHECK
⚠ STATIC NTS	CHECK
⚠ STATIC AUTO FEATHER	CHECK
POWER LEVERS	GRD IDLE
COND LEVERS	RUN
LIGHTS MASTER	SET
HYD PUMP HANDLE	STOWED
OIL LEVEL LOW LIGHTS	OUT
CLOCKS/ALTIMETERS	SET
NAV SWITCHES	CAINS/HARS

PRE-TAXI

TRIM SWITCHES	CYCLE/SET
RUD RATIO/PITCH FEEL	CHECK/SET
PERS AIR COND	ON/AUTO
⚠ BLEED AIR	CHECKED/OPEN
RADAR ALTIMETER	ON/SET
HARS	SYN, CHECK
GEN/BUS TIES	CHECK/ON
EXT PWR COMM. (IN SEQUENCE)	REMOVED
AFCS	CHECK
RUDDERS/HYD PRESS	CHECK
HATCHES/MAIN DOOR	SECURE
CHOCKS	PULL

PRE-TAKE-OFF

BRAKES	CHECK
FLT INST	CHECK
ANTI-ICE/DE-ICE	AS REQ
NAV AIDS	CHECK/SET
IFF/TRANSPONDER	AS REQ
AUTO FEATHER	ARM/LIGHTS
AFCS	PWR ONLY
TRIM	CHECK/SET
LOOSE GEAR	STOWED
MAX RUDDER	20°
AIR COND	SET
CATAPULT GRIP	AS DESIRED

⚠ AIRCRAFT INCORPORATING AFC 184
⚠ AIRCRAFT INCORPORATING AFC 220

TAKE-OFF

WING/CONTROLS	SPRD/LKD/FREE
FLAPS	SET/CHECK
HARNESS	LOCKED
CREW	BRIEFED & READY
REVERSE THRUST	CHECK
PARK BRAKE	OFF
ENGINES	CHECK
⚠ POWER LEVER LOCK	SET

CLIMB

GEAR	UP
FLAPS	UP
MAX RUDDER	8°–2°
HYD ISOL VALVE	FLT
AUTO FEATHER	OFF
⚠ PROP SYN MASTER SW	AS DESIRED
STAB AUG	ENGAGED
IFF/TRANSPONDER	SET
NACELLES	CHECK
PRESSURIZATION	CHECK

APPROACH

AUTO FEATHER	ARM
⚠ PROP SYNC MASTER SW	STBY
HYD ISOL VALVE	TO & LDG
DE-ICE/ANTI-ICE	AS REQ
TRAIL WIRE	IN
RADAR	STBY/OFF
HOOK BYPASS	AS REQ
FUEL	CHECK
FLAPS	UP
RADAR ALTIMETER	ON/SET
BRAKE CYCLE INDICATOR	CHECKED
PARKING BRAKE	OFF
AIR COND	SET
AFCS	AS DESIRED
CREW	BRIEFED AND READY
HOOK	AS REQ
⚠ POWER LEVER LOCK	SET

LANDING

FUEL DUMP	OFF
HOOK	AS REQUIRED
AFCS	PWR ONLY
GEAR	DOWN
FLAPS	DOWN
MAX RUDDER	20°
HARNESS	LOCKED
CREW	READY

POST LANDING

⚠ POWER LEVER LOCK	RELEASE
FLAPS	20
HOOK	AS REQUIRED
WINGS	FOLD
ROTODOME	AS REQUIRED
IFF	OFF
VAPOR CYCLE	DIR/MT

SECURE

PARKING BRAKE	SET
CAINS	CLOSE OUT
POWER LEVERS	GRD IDLE
COND LEVERS	GRD STOP
EMERG GEN	CHECK
ALL SW's, LEVERS, EQUIP	OFF
HATCHES	CLOSED
GRD LOCKS	INSTALLED
MAIN WHEELS	CHOCKED

Only items in box need be completed for touch and go landings. 1 DECEMBER 1974

Ltjg. Mark Edwards
Ltjg. James Blastos
AMS2 Donald Livingston
AMSAN James Nix
HC-8

While on a flight between MCAS New River and MCAS Cherry Point, the CH-46 crew heard a muffled "pop" as the No. 1 engine wound down. Both pilots scanned their instruments and confirmed a complete engine failure.

Ltjg. Edwards (HAC) lowered the collective and established single-engine airspeed. Ltjg. Blastos (copilot) broke out the pocket checklist, and the crew went through the emergency procedures. AMS2 Livingston and AMSAN Nix prepared the passengers (VAdm. J.S. Donnell III, COMNAVSURFLANT, and his aide) for landing, and prepared to jettison cargo and the auxiliary fuel tank.

Ltjg. Edwards set up an approach to a small clearing in the forest below, while Ltjg. Blastos tried unsuccessfully to restart the No. 1 engine. Ltjg. Edwards made a no-hover landing in the clearing with rotor rpm dropping to 60 percent. ◄

From left to right:
AMSAN James Nix,
Ltjg. James Blastos,
Ltjg. Mark Edwards,
VAdm. J.S. Donnell III
(AMS2 Donald Livingston not pictured)

BRAVO ZULU

Cdr. J.R. Nelson
VFA-136

Ten minutes after launching as part of an air wing strike, Cdr. Nelson noticed a fluctuation in the No. 1 hydraulic system, followed by a dual circuit failure. As Cdr. Nelson headed back to USS *Eisenhower* (CVN-69), he saw APU and left engine fire warning lights and heard the voice warning alerts. He secured the left engine, jettisoned his half-full drop-tanks, and made a single-engine recovery.

Maintenance personnel found the hydraulic pump still producing enough heat to keep the paint and hydraulic fluid burning. Fire and salvage crews extinguished the fire.

The engineering investigation revealed a failure of the trunion bearing assembly in the hydraulic pump. This failure caused internal friction hot enough to start fires in the APU and AMAD compartment. A *simultaneous* failure in both circuits of either hydraulic system, with abnormal system pressure, indicates that this condition may exist. The only way to remove the heat source is to stop the pump from rotating.

VFA-136 has initiated a NATOPS change that proposes shutting down the affected engine and slowing the aircraft, thereby reducing rotations on the hydraulic pump and subsequent heat.

From left to right:
Cdr. J.R. Worthington
Lt. John Vesterman

Cdr. J.R. Worthington
Lt. John Vesterman
VA-95

As part of their PMCF, Cdr. Worthington and Lt. Vesterman completed engine performance checks at 40,000 feet. As they descended through 38,000 feet, their A-6's canopy suddenly departed, resulting in an explosive decompression. The crew could not communicate with each other nor hear any instructions from controlling agencies because of the wind and engine noise.

Cdr. Worthington increased the aircraft's rate of descent toward home while Lt. Vesterman transmitted in the blind, telling ATC about their situation. Communicating with hand signals, the crew accomplished all NATOPS emergency procedures.

An unexpected fog bank had rolled in, placing their base under partial IFR conditions. With only limited view of the ground, and trying to remain VFR, the A-6 crew made a visual approach to the runway, which was obscured by the fog.

After an uneventful arrested landing, the postflight inspection revealed that moisture had entered the Emergency Jettison System and had frozen at altitude. As the ice expanded, it activated the firing cartridge in the canopy system.

1stLt. William L. Hogue, USMC
VT-23

After his final cat shot during T-2 carrier qualifications, 1stLt. Hogue cleaned up his aircraft and climbed to 1,500 feet to join his lead-safe pilot. As he was performing a CV rendezvous, the student naval aviator (SNA) felt a jolt and heard a grinding sound coming from the No. 2 engine. Both sets of engine instruments began fluctuating wildly. As 1stLt. Hogue went to military power on both engines, the No. 1 engine stabilized while the No. 2 engine remained erratic, with EGT and RPM rapidly decreasing.

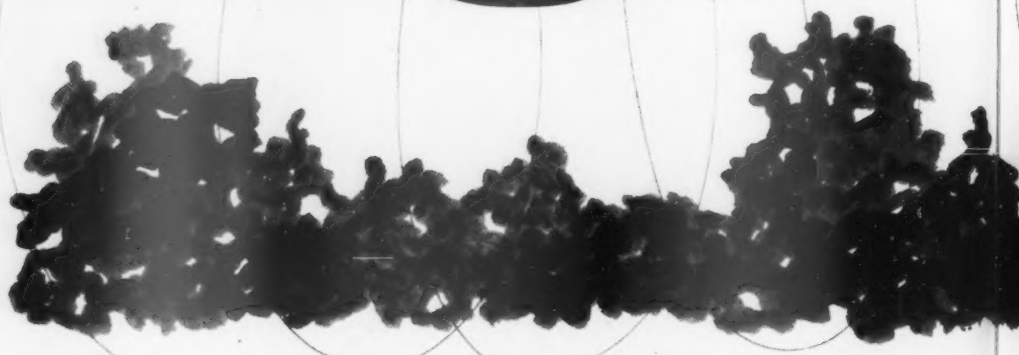
1stLt. Hogue pulled the No. 2 engine throttle to idle, monitored his instruments and checked for fire indications. The engine momentarily stabilized at idle but continued to fluctuate and degrade.

The SNA called his lead-safe who joined on him and told him to steer for NAS Key West. After discussing options with his lead, 1stLt. Hogue shut down the No. 2 engine and flew single-engine to Key West where he made a safe landing.

Postflight inspection revealed that the landing light had separated from its receptacle beneath the Buckeye's nose while the aircraft was in the "clean" configuration, and had been ingested by both engines. The No.2 engine was severely FODed while the No. 1 engine was not as severely damaged.

The Trees Got Much Larger

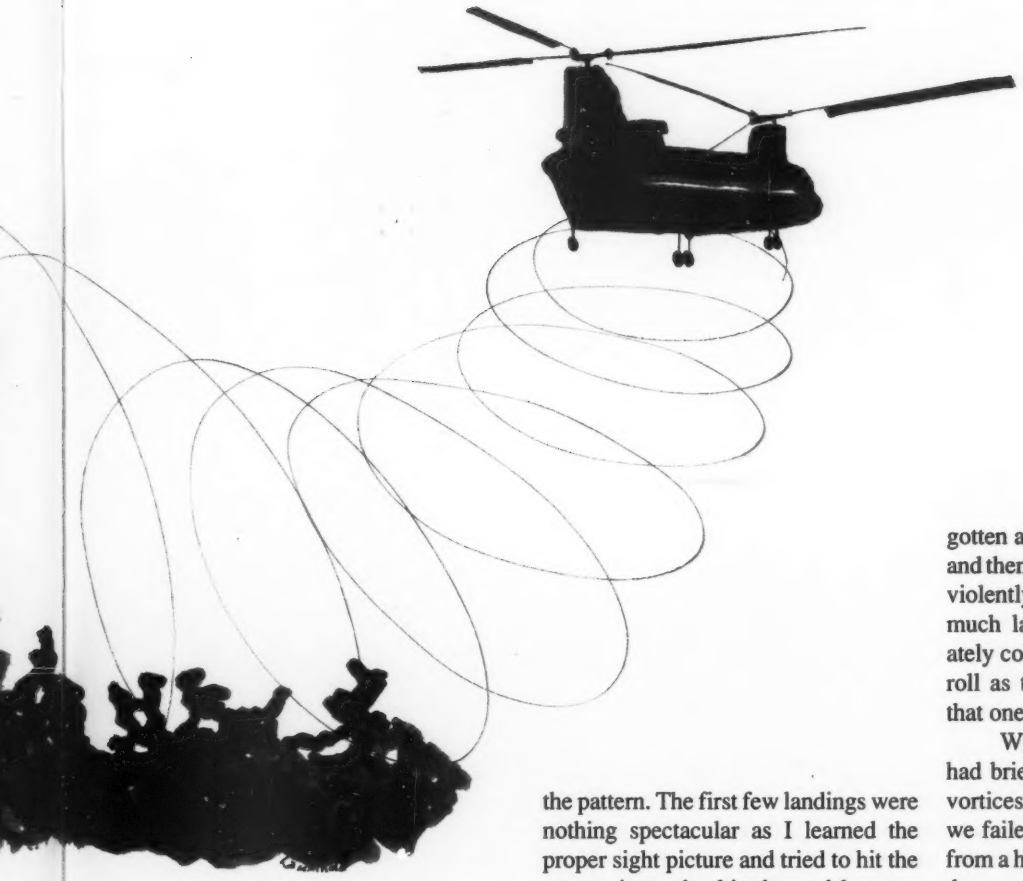
By Lt. Gavin J. Giddings



Springtime in Maryland. The day couldn't have been better. Clear skies, unbelievable visibility, and no wind. The icing on the cake was my fifth VTNA hop. VTNA was the Naval Academy's flying club. We used civilian instructors and a Varga Kachina. For me, a prospective Naval Aviator, the Varga was almost a T-34 with tandem seating, a low wing, and a stick, but with a reciprocating engine instead of the T-34C's turboprop. Ground school consisted of a few evening sessions which left most of the training to OJT.

I drove to Baltimore-Washington International for the brief. I had mastered taxiing, straight-and-level flight, turns, and approaches to stalls, so we would concentrate on touch-and-go landings. BWI is a busy place, and we briefed to fly to a nearby Army strip.

Taxiing next to DC-10s was a



humbling experience. My instructor pointed out how the DC-9 ahead of us created huge wingtip vortices as its nosewheel lifted off the runway. Noting that our takeoff roll was much shorter than that of the commercial aircraft, we knew we could stay clear of the vortices. The tower helped by holding us a little longer.

We took off, flew to the Army field, contacted the tower and entered the pattern. The first few landings were nothing spectacular as I learned the proper sight picture and tried to hit the proper airspeeds, altitudes, and the number on the runway. In the calm air, I kept floating half-way down the runway.

My instructor took control to demonstrate a disgustingly text-book landing. As we lifted off, we heard a CH-47 enter the pattern behind us. I didn't pay much attention as I was involved with stick-and-rudder stuff. Turning the corner for what I hoped would be a picture-perfect squeaker on the numbers, I saw the helo on short final.

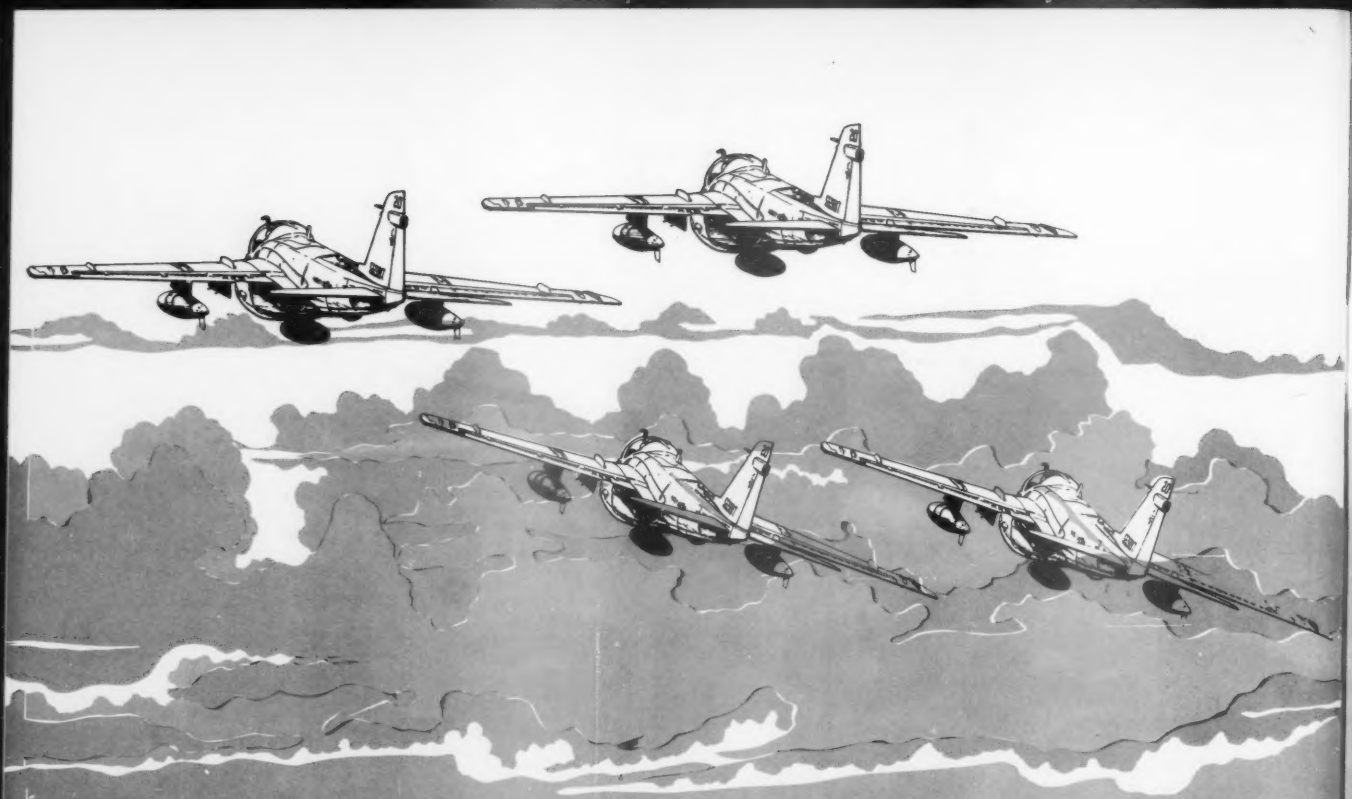
We were approaching the groove as the CH-47 cleared the runway. I'd gotten a little low and slow setting up, and then we hit it. The light plane rolled violently to the right and the trees got much larger. The instructor immediately cobbed the power and fought the roll as the aircraft shook. We waved that one off and called it a day.

What happened? Even though we had briefed and had actually seen the vortices of a large, fixed-wing aircraft, we failed to consider the same danger from a helicopter. Helicopters generate downwash to provide lift, and, in forward flight, they provide a pair of trailing vortices similar to a fixed-wing wingtip vortex.

Light winds are the worst, because vortices linger and move outward away from the runway at about five knots. A light crosswind or tailwind can hold the vortices on the runway.

Give helicopters a healthy interval, using the same vortex and wake clearance you would give to a fixed-wing aircraft. Watch the winds, and, as always, be ready to take it around. ◄

Lt. Giddings is an A-6E pilot instructor with VA-42. He also flew with VA-65.



Separation, Not Slamming

By Lt. M.E. Sadlowski

MARSA means Military Assumes Responsibility for the Separation of Aircraft. We use this call to expedite a rendezvous or obtain clearance into a MOA or warning area. By assuming responsibility, we take the burden of safe operation from the controlling agency. We *assume* we can maintain safe operation.

We launched on a long-range (1,600 nm) strike with four A-6Es and two EA-6As to NAS West Coast EW Range. The weather was VFR underneath, but layered between 4,000 feet and 23,000 feet, and forecast to improve rapidly. We planned to launch our six planes in three two-plane sections, each with their own squawk and call "MARSA" once we were VFR on top. I was in the lead aircraft of the third section.

All six aircraft took off with three to five miles of separation between sections. The flight quickly went IMC, and all three sections continued climbing to FL 290, our assigned altitude. We broke out at 10,000 feet in between layers. The EA-6As, still three to five miles in trail, called MARSA. Center immediately told the EA-6s to squawk "stand by." As we all continued climbing, we encountered IMC again.

Now, the EA-6s told center they were not MARSA anymore. The confusion took a few minutes to clear up. Meanwhile, we kept climbing and eventually broke out on top at FL 220. We found the second section less than *100 feet* from us, almost in perfect cruise formation.

During the debrief, we asked two important questions. What went wrong, and how can we prevent it from happening again? The answer to the first question was that someone declared MARSA before they were ready to assume separation responsibility. Altitude splits in a climb are transient. Different airspeeds and climb rates indicate that the safest split is with heading.

You need to confess your inadvertent IFR, declare your intentions and squawk 7700. Explaining why you messed up and went unfiled IFR is much easier than having to explain a midair.

After we reached FL 290, the hop went smoothly. However, the problems during the climb dampened our enthusiasm considerably. ◄

Lt. Sadlowski is a BN with VA-155.

Fire in the Cockpit!

By Lt. David Boal

The ship had already pulled out and most of the squadron was aboard except for my crew, one S-3, and the beach det. We were scheduled to fly aboard a few days later. Our assigned plane had just returned from SDLM after being retrofitted with a buddy- store tanker package. We were supposed to fly the plane once before going out to the carrier to make sure there were no problems.

After takeoff, I cleaned up and turned out on the assigned departure when the COTAC smelled something unusual. I had my oxygen mask on and didn't detect anything. But, within seconds, I saw smoke on my side of the cockpit near the throttle quadrant. A fire soon developed on the left side of the pilot's eyebrow panel, indicating an electrical fire. The NATOPS memory items for an electrical fire are short and sweet: 100 percent on, bus switches (both) off. I immediately turned downwind, dirtied up, declared an emergency, secured both electrical buses and landed. By the time we finished talking with the tower, we were on a short final, hook down, and the fire still burning. We made an uneventful arrested landing.

Postflight inspection revealed that the fire was caused by an electrical short in the windshield heating system. The fire had melted the windscreen halfway through the plexiglas. The liquified plastic had dripped onto the control stick and my right hand, proving the usefulness of Nomex gloves.

The short delay in securing the electrical buses to obtain landing clearance and to declare an emergency allowed the fire to do more damage to the windscreen. If we had completed NATOPS procedures immediately we would have extinguished the fire much sooner. Also, launching with oxygen on – an option for S-3 crews – saved us the time it would have taken to don our masks while flying low and slow. ◄

Oxygen is not required at all times in the S-3 because of the limited supply for the four-man crew and the Viking's long missions. NATOPS requires the use of oxygen above FL 270 and that it be immediately available above 10,000 feet. Many squadron SOPs require oxygen for low-levels, bombing, traps and cat shots. – LCdr. D.S. Parcher, Naval Safety Center S-3 analyst.

Lt. Boal is an S-3 pilot with VS-21. He is the squadron NATOPS Officer.

Only the Spare

By Lt. Dan Mellecker

AS we manned up for another night spare, one of the last things on my mind was the possibility of a trap. It was a simple sortie, a night AIC hop. After my RIO and I preflighted our Tomcat, we waited for a huffer and an electrical power cord. We were one of the last planes to start. No big deal. We were just the spare.

Then we sat there, expecting at any moment for the plane captain to signal us to shut down. I thought about port calls, especially Australia, which we would see in only two days. I was not thinking about an approach to the ship on a dark night.

As the yellow shirt approached, I prepared to shut down. However, they started breaking us

down. One of the "go" planes had gone down, and before I knew it, we were on the cat.

As the last event of the evening, and a one-hour cycle, we were in marshal in no time. As we pushed I began to think about my pass and the fact that I hadn't flown at night in over a week. What's the big deal? We had been flying at night for over three months of the cruise.

At three miles, I looked outside to cheat on lineup. I couldn't see the ship yet, but I did notice there was no horizon and it had gotten very dark.

"201, on and on at three-quarter miles, call the ball." From instinct, I looked straight at the meatball and flew it as my RIO made the ball call. Before he finished, I had already deviated from the good start I had worked so hard for. We drifted to the right and started to climb a little.

"Come left," the LSO called. The combination of being underpowered, correcting the high ball, making a lineup correction, and having the deck come up caught me by surprise. Suddenly the red lights were blinding me as the LSO told us to wave off.

As we turned downwind for another try, I tried to stop shaking. My RIO also confessed to being a little scared. Then I thought about how that pass would affect my grades instead of concentrating on the next pass. We had come close to hitting the ramp. Everyone had warned us about getting "too comfortable" at mid-cruise.

We had an extended downwind for our seven-mile "hook." That gave us time to discuss what had happened and to prepare for the upcoming pass. As we turned base, with a new perspective, we decided that better mental preparation would result in a safe landing. We were right. I will never again man up thinking, "I won't go flying because I'm just the spare."

Lt. Mellecker is a first-cruise F-14 pilot with VF-21.

Who Turned Out the Lights?

By Lt Glen Washington

We Naval Aviators must be cats with nine lives. Sometimes our extraordinary reflexes and skill help us dodge the Grim Reaper; sometimes, it's just dumb luck.

Imagine yourself as a six-month F-14 nugget taxiing to the cat for your first *really*-dark cat shot during workups. Also imagine the terror and anxiety you feel after watching two jets end up in the water within the previous 48 hours.

As we taxied onto the catapult, my RIO and I completed takeoff checks and went into tension. I had just reviewed my catapult emergencies – cold cat, electrical failure, single-engine – and I felt ready. I checked things once more then turned on my external lights to signal we were ready to launch.

I watched the afterburner nozzle indicators for any sign of engine malfunction. As we approached the end of the stroke, I transitioned to the attitude indicator and prepared to rotate. Suddenly, everything went black! My first thought was a total electrical failure. But things felt strange.

My mind groped for a solution. Then it hit me: the visor on my lightweight helmet had slid down, blinding me. I quickly threw the visor up and established the proper flyout attitude – 10 degrees, not the 5-degree position I was in.

After I completed the hop, I thought about how lucky – and stupid – I had been. I had definitely used one of my nine lives. I should have changed to a clear visor. Even something as simple as a new flight helmet can cause problems if you're not prepared.

Lt. Washington is a first-tour pilot with VF-32. He is the squadron's Assistant Corrosion Control Officer. He was previously a SERGRAD in VT-21.

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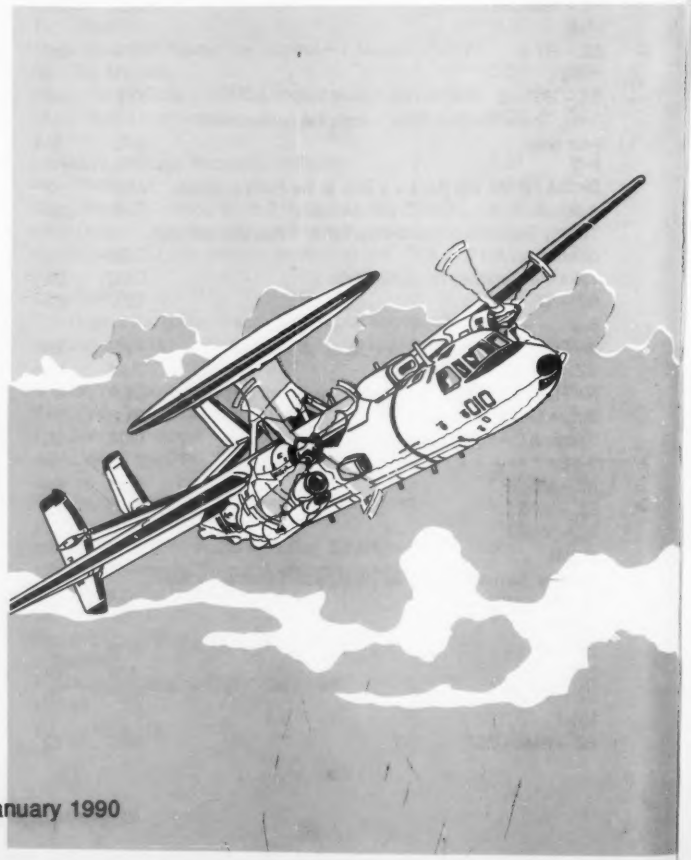
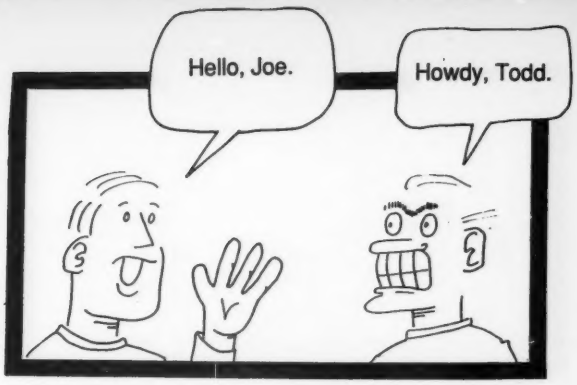


BROWNSHOES IN ACTION COMIX

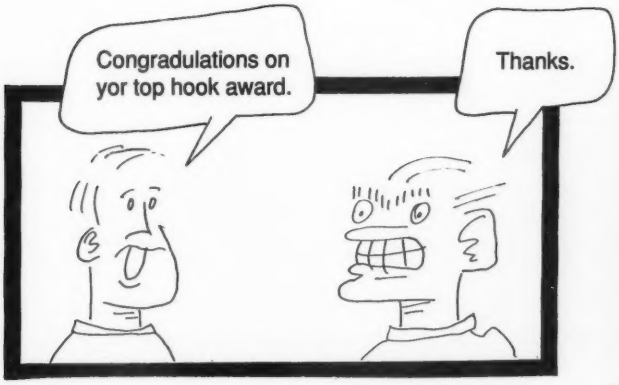
"The kind real aviators like"

By Lt. Ward Carroll

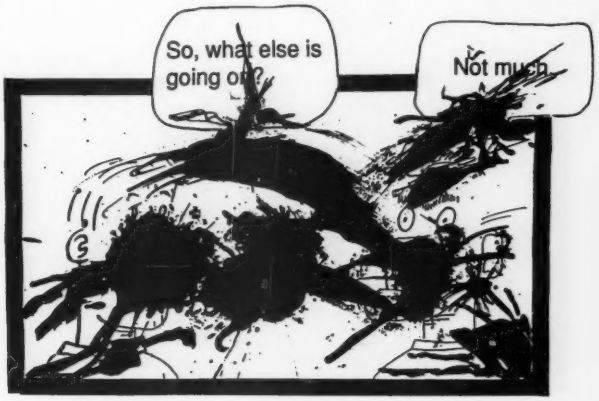
The aircraft mishap investigation team reconstructs a cartoonist's ground mishap.



"Here we see the first signs of trouble. Inaccurate detail in the artwork and the plain-vanilla dialogue can only mean one thing: The cartoonist has become complacent."

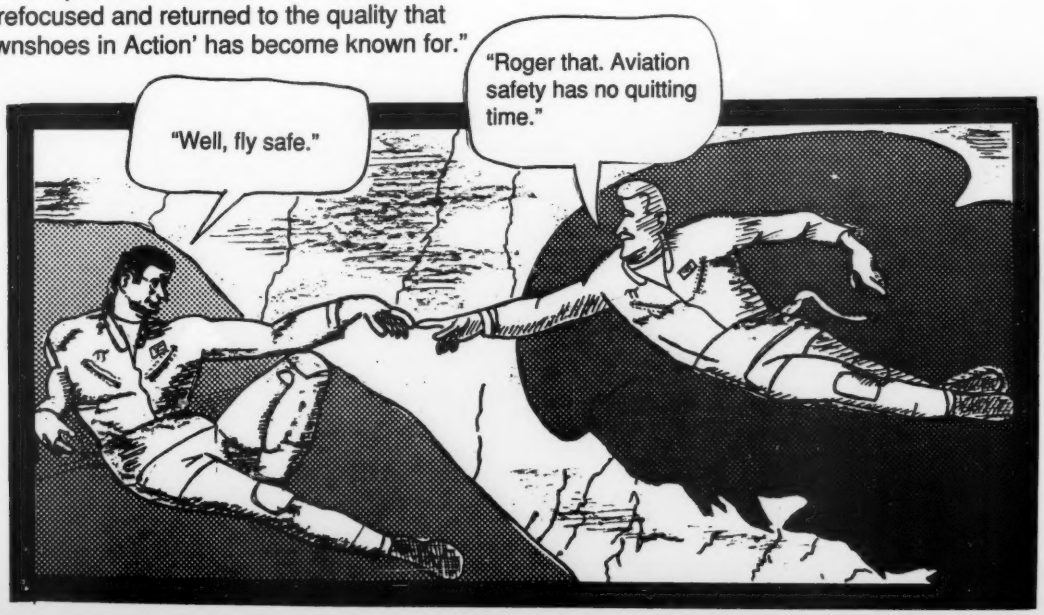


"At this point, the hurried sketches and misspellings indicate a bad case of get-home-itis."



"Then disaster struck. Fortunately, the cartoonist's trousers cost well under $10,000, and the mishap was not reportable."

"After a personal standdown, the cartoonist has refocused and returned to the quality that 'Brownshoes in Action' has become known for."



THINK FLIGHT SAFETY Or ElSe SOMEONE Dies!

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